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HIV among out-of-school youth in Eastern and Southern Africa: a review

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HIV among out-of-school youth in Eastern and Southern Africa: a review

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<th>AIDS Care - Psychology, Health &amp; Medicine - Vulnerable Children and Youth Studies</th>
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[Image of journal covers]
HIV among Out-of-School Youth in Eastern and Southern Africa: a review

ABSTRACT
The overall decline of the HIV epidemic in Sub-Saharan Africa conceals how the HIV burden has shifted to fall on areas that have been more difficult to reach. This review considers out-of-school youth, a category typically eluding interventions that are school-based. Our review of descriptive studies concentrates on the most affected region, Southern and Eastern Africa, and spans the period between 2000 and 2010. Among the relatively small but increasing number of studies, out-of-school youth was significantly associated with risky sexual behavior (RSB), more precisely with early sexual debut, high levels of partner concurrency, transactional sex, age-mixing, low STI/HIV risk perception, a high lifetime number of partners, and inconsistent condom use. Being-in-school not only raises health literacy. The in-school (e.g., age-near) sexual network may also be protective, an effect which the better-studied (and regionally less significant) variable of educational attainment cannot measure. To verify such double effect of being-in-school we need to complement the behavioral research of the past decade with longitudinal cohort analyses that map sexual networks, in various regions.
I. Background

Out-of-school adolescents are an upcoming population of research in the field of sexual and reproductive health (SRH). Most studies and interventions have targeted in-school youth: they are easier to reach, making surveys and interventions cheaper and less complex in terms of logistics. Given the established role of behavioral change and education in countering the HIV epidemic in Sub-Saharan Africa (Gillespie et al. 2007), disregarding the out-of-school category is no longer an option.

(Subfigure 1)

Sub-Saharan Africa has the highest proportion of children out of school with 26% of the primary school-age population; girls are more often out of school than boys (UNESCO 2009). There are positive trends though. Eastern Africa is catching up with southern Africa, after national policies dropped user-fees at the turn of the century (figures 1 and 2). Since about 1996 Sub-Saharan Africa has witnessed a reversal of association between educational attainment and risk of HIV infection, from hazardous to protective (Michelo et al. 2006, Hargreaves et al. 2008a). Out-of-school youth are the main category failing to benefit from this reversal. Therefore, a systematic review of research relating out-of-school youth and HIV seems timely. Our review covers the last ten years and concentrates on the region most affected by HIV: East and Southern Africa.

(Subfigure 2)

The association between educational attainment and less RSB is significant, although not uniform across the region. In two thirds of 18 sub-Saharan African countries education is associated with more condom use at last intercourse (Bankole et al. 2009). Education increases health literacy (Bogale et al. 2010) and can delay sexual debut (Gupta and Mahy 2003), which is important because of the role in Southern Africa’s generalized HIV epidemic of early sexual debut combined with high levels of partner concurrency (Dixon-Mueller 2009, Kenyon et al. 2009). Partners of 3 years older or more significantly increase the risk of HIV infection (Katz and Low-Beer 2008, Chapman et al. 2010). One factor is the age-disparity hampering negotiation of condom use (Longfield et al. 2004, Clark et al. 2006) as well as hampering STI/HIV risk perception (Clark 2004, Clark et al. 2010).

Hence, termination of a girl’s school career due to early marriage deprives her not only of health literacy but also of the school’s safer, age-near sex network. The well-studied variable of educational attainment cannot register this second protective effect. A variable determining whether one is in or out of school can.

II. Methods
The methodology of this review is based upon the PRISMA statement (Moher et al. 2009). Study eligibility and extraction procedures were specified in a systematic review protocol applying the following criteria of inclusion:

- **Location**: the article must report on Eastern and Southern African countries. Countries included are: Eritrea, Ethiopia, Uganda, Kenya, the United Republic of Tanzania, Burundi, Rwanda, Democratic Republic of the Congo, Malawi, Zambia, Mozambique, Angola, Botswana, Lesotho, Namibia, Swaziland, South Africa, Zimbabwe, Comoro, Madagascar, Seychelles, Mauritius;
- **Target population**: the article must report on young people aged 10 to 24 years and include out-of-school youth. We specified additional categories related to out-of-school youth. Firstly, mainstream groups such as pregnant girls and married adolescents, rural boys and girls. Secondly socially marginalized youth, such as street children, orphans and vulnerable children in communities highly affected by HIV, adolescents involved in commercial sex work, child soldiers, migrants, refugee children, drug users and gang members;
- **Type of study**: the article should report on the status of HIV/STI among youth or on HIV prevention or SRH promotion programs;
- **Time limitation**: articles should be published between January 2000 and August 2010.

With the corresponding word string, articles were searched in online databases PubMed, ISI Web of Science and OVIDsp. Bibliographic sections of the selected articles were searched as well as ‘grey literature’ on websites of major international health organizations. To remedy any gaps, four authors of key articles were contacted to suggest additional material. Three authors responded, of whom one suggested two additional papers.

An electronic data extraction sheet was piloted by two authors and refined thereafter. Data extraction was done independently by the five authors. Of the 2216 articles, including 614 duplicates, inclusion criteria were met by 283 descriptive articles and 157 intervention studies. This review considers only the descriptive articles. After assessing the full text, we remained with 19 descriptive studies dealing explicitly with HIV among out-of-school youth in Eastern and Southern Africa (11 from PubMed and 6 from ISI Web of Science). After deducting publications concerning the same study we were left with 16 studies forming the key literature for our review. Twelve are cross-sectional studies of random population samples. Four are qualitative studies, based either on focus group discussions or on in-depth interviews.

(INSERT figure 3)
III. Results

Since 2007 an increase of publications can be noted on HIV among Eastern and Southern African out-of-school youth. The previous ten years were meager. Ethiopia, South Africa, the United Republic of Tanzania and Uganda have benefited more than once from such research; Kenya and Zambia only once. The category has not been put on the research agenda elsewhere. The next two tables schematize the various studies included in this review. Study design and results are specified. Qualitative studies are in table 2 (Q= qualitative, IDI= in-depth interviews, FGD= Focus Group Discussions). When articles report on the same study, the table of results only includes the earliest publication (the dates of the later publications are between brackets).

The first thing that strikes is the lack of standardization in defining youth. Four out of 16 studies opted for teenagers: the age group 10 to 19 years, or 10 to 18 years. This seems advisable so as not to exclude any sexually active youth. Most (6 out of 16) however opted for the groups 13 to 18 years, 13 to 19 years or 12 to 21 years. The rest chose an even older age group: 14 to 21 years, 14 to 25 years, or 15 to 24 years. We may be witnessing a gradual consensus in the field though, because the prevailing trend, since the Zambian study in 2005, is towards the age group of 10 to 19 years, which includes teenagers and excludes older adolescents who are commonly out-of-school anyway.

A second remarkable fact is the dearth of data on HIV serostatus and/or STI infection among out-of-school youth. Only two studies report on it. In a 2001 sample of 1003 female and 916 male youths in the South African rural province of Limpopo, Hargreaves et al. (2008b) found that the chance of being HIV positive was about 20% higher for non-students (more exactly, between 0.06 and 0.71 times higher, confidence interval [CI]of 95%). After adjusting for age the association was no longer significant for women. A urine PCR of 522 adolescents from Addis Ababa showed that *Chlamydia trachomatis* and *Neisseria gonorrhoeae* were significantly (p<0.05) more common among out-of-school than in-school youth (Taffa et al. 2002a).

The dominant theme of research is risky sexual behavior (8 studies) and its counterpart, condom use (7 studies), which usually feature together. HIV/AIDS research traditionally identifies the following eight practices as indicators of risk of infection. In most studies risky sexual behavior is determined by probing a number of these practices.

First, Ndyanabangi et al. (2004) have established in a cross-sectional study in Uganda (n= 556) that sexual debut is earlier among out-of-school than in-school youth. The former are also more likely to
report sexual activity in the past year (p < 0.001). Taffa et al. (2003) confirm that sexual activity of out-of-school girls in Addis Ababa is higher in comparison to in-school urban girls (between 1.8 and 4.5, CI 95%). In rural South Africa this is true for out-of-school boys (Hargreaves et al. 2008b).

Secondly, more concurrent or multiple partners are found in the out-of-school category in rural South Africa, for both sexes aged between 14 and 25 (Hargreaves et al. 2008b). A smaller sample of 561 respondents in urban Ethiopia (Addis Ababa) yielded this significant association for young women only (Taffa et al. 2003).

These associations contrast with a recent, more comprehensive cross-sectional study by Masatu et al. (2009) among 3495 boys and girls aged between 10 and 19, of whom 1000 were out-of-school. The data showed less concurrency or multiple partners for out-of-school boys in Tanzania (OR= 3.0; 95%CI= 2.2-4.1). Unprotected sex and multiple partners were more likely with a factor 2.3 among Christians than among non-Christians. The authors however note that the three villages of the sample were selected for high HIV prevalence and that the local schools may have sexually risky peer-pressure cultures.

Third, transactional sex can be a way to gain material support, affirm self-worth, achieve social goals, or increase longer-term life chances. Focus group discussions in Uganda revealed that rural out-of-school young women find material need a more appropriate motive for sex than pleasure (Nobelius et al. 2010b). In quantitative research among 628 out-of-school youth aged between 15 and 24 in Bahir town, Alemu et al. (2007) observed that the probability of having sex with either a commercial or a non-regular sexual partner rose with a factor ranging between 1.83 and 4.23 (CI 95%) for out-of-school adolescents who drink alcohol at least once a week (in comparison to out-of-school youth reporting no alcohol intake). The probability of such sex was also 6 times higher for those chewing khat. The sample did not contain in-school youth for comparison though.

Fourth, in the same study age-mixing often went hand in hand with transactional sex. Junior wives in polygamous marriages engage in cross-generational sex with all the risks attached and suffer from reduced negotiation power. Besides having more concurrent or multiple partners, out-of-school girls in rural South Africa engage more in age-mixing than those in school (Hargreaves et al. 2008b; for partners of three years older: 95% CI 0.37 to 0.92).

Fifth, a large survey comparing in-school and out-of-school youth in South Africa has established that secondary school attendance decreases the lifetime number of partners (Zambuko and Mturi 2005). Female students are less likely to have partners more than three years older than themselves, to have had sex more than five times with a partner and to have had unprotected intercourse during the past year.

Sixth, in the same survey inconsistent condom use was mostly found in South Africa among out-of-school girls, and more so among those who were never pregnant, hence had less chance of previous
contact with reproductive health services and their information. Unmarried out-of-school young men tended towards unprotected sex in case they had never impregnated a woman nor engaged in transactional sex. An exacerbating factor was having peers who are indifferent or negative towards condom use.

Our review’s cross-sectional studies reveal that out-of-school youth resort less to condoms during casual sex. The seminal study in Zambia by Slonim-Nevo and Mukuka (2005) of randomly selected subsamples containing both rural and urban, out-of-school and in-school, male and female youth aged 10 to 19 (n= 3360) pointed to a higher likelihood (p < 0.01) among the out-of-school categories to have unprotected vaginal and anal sex, as well as to be sexually active, combine alcohol and sex, trade sex for money or food, and to have had an STI. Higher risk tendencies were encountered among older and married, poorer and rural out-of-school adolescents. Significantly less condom use among out-of-school youth has been confirmed for Uganda (p < 0.001; Ndyanabangi et al. 2004). Little over a third of out-of-school young Ethiopians who had sex in exchange for money consistently used a condom (Alemu et al. 2007).

Condom use requires, among others, a certain degree of HIV/AIDS information, more generally termed health literacy, which can be obtained in school. Self-efficacy in SRH planning is an educational outcome often lacking among low-literate rural young women in Ethiopia (Taffa et al. 2002b, 2003). HIV knowledge is relatively low among out-of-school youth, both in Tanzania (Bastien 2008) and in Uganda (Ndyanabangi et al. 2004). In a sample of 1007 urban and rural out-of-school youth (aged 13-18) Bastien (2008) found that boys in urban areas and with higher education are more knowledgeable about HIV/AIDS than their rural, less educated counterparts. The sample did not contain in-school youth to extend the comparison. Bastien’s (2009) qualitative study based on 78 IDI described the limited exposure among out-of-school youth to HIV information and their less frequent communication about the topic with peers. Francis and Rimmensberger (2008) paint a similar picture for out-of-school youth in KwaZulu-Natal, South Africa, where the absence of a structured learning environment such as a school prevents these adolescents from breaking with entrenched notions of gender, sexuality and low self-esteem.

(INSERT table 3)

IV. Discussion

From the results presented above we can only infer that young people in school exhibit individual behavior that is sexually less risky. The logical recommendation is to have youth stay longer in school, beyond the age of sexual maturation. There are a number of caveats though. First, such
recommendation denies the out-of-school category adapted SRH interventions. The lure of pastoralist and agricultural lifestyles should not be underestimated, nor their incompatibility with school curricula and attendance. Civic organizations and the parental home can be alternatives for the school’s protective role (see Harrison et al. 2008). Local bars and media channels such as radio can be used to reach this population (UNFPA 2011).

Secondly, well-targeted interventions require more differentiated descriptions than the conventional one of UNESCO reports considering children to be out-of-school if they had no exposure to school during the school year in question. Children may be officially enrolled in schools yet not attending due to agricultural work, sickness, teacher absence, deaths in the family, the need to care for someone ill at home, or lack of means to cover school-related expenses (Burke and Beegle 2004). SRH profiles will differ between urban and rural out-of-school youth, between street children (whose out-of-school status is rarely mentioned by studies, see UNFPA 2011) and children orphaned by AIDS (who attend school only slightly less, except in Mozambique and Ethiopia, see UNAIDS 2010). Finally, in low-income countries out-of-school status can be up to sixty percentage points higher among persons with disabilities (UNESCO 2009: 82). In South Africa at least, disability is associated with almost 50% more HIV prevalence (Shisana et al. 2009: 36). ¹ We advise that future studies on out-of-school youth differentiate their data according to these categories.

Thirdly, the association of out-of-school youth with HIV is unclear as to the direction of causality. No study as yet could exclude that the association stems from HIV infected youth actually leaving school after feeling stigmatized because of their HIV status and/or their RSB. Research among out-of-school cohorts who began to experience symptoms sufficiently long after their schooling period is necessary. Longitudinal cohort studies could reveal whether schools form relatively isolated communities, where risky sexual behavior is epidemiologically less problematic than in the open, densely connected network outside of school. This effect of the sex network is hard to discern through RSB research with its individual-behavioral slant.

The longitudinal cohort study of Bärnighausen et al. (2007) in rural KwaZulu-Natal has summed up the SRH impact of educational attainment in their by now widely cited conclusion that HIV risk decreases with 7% for each additional year of educational attainment, holding age and sex constant. Can it be generalized? The Demographic and Health Surveys (DHS) of countries neighboring KwaZulu-Natal all exhibit a steady decrease of HIV prevalence as educational attainment advances from the level of lower (or incomplete) primary school to the level of secondary school or more (see country databases at www.measuredhs.com): for women from 33.8 to 30.5 in Swaziland (2006-07), 28.7 to 23.8 in Lesotho (2009), 22.4 to 15.8 in Zimbabwe (2005-06). However, in other southern African countries HIV

¹ The association is admittedly hard to ascertain since symptoms of HIV infection can be subsumed under disability due to its broad definition. Respondents with disabilities also score low on HIV status awareness (Shisana et al. 2009: 4, 51).
prevalence rates rise with education from 15.8 to 17.4 in Zambia (2007), 14.4 to 15.0 in Mozambique (2009), 13.2 to 15.1 in Malawi (2004). Future research could determine whether the hazard of the higher educated follows from finding employment after school that expands the sex network. Out-of-school status might be a stronger SRH discriminant than educational attainment for revealing the respondent’s current network. Hence, longitudinal cohort studies can complement RSB research but their significance should be cross-regionally verified.

A final issue is the unexpected higher RSB in rural Tanzanian schools, which Masatu et al. (2009) attribute to peer-pressure. We would rather point to the out-of-school sex network in rural Tanzania where cultivation is demanding and elicits behavioral restraint rather than opportunity for partnering, yet where any globalizing process (e.g., through infrastructure or mining) opening the farmer’s protective network can exact a high price for health illiteracy. The widely advertised decline of HIV prevalence rates in Southern and Eastern Africa threatens to obscure where the decline takes place: in the educated urban areas reached by interventions. Prevalence trends among antenatal care attendees reveal a slight to significant rise currently in the rural areas, among others in Malawi, Swaziland, Uganda, Burundi, and Angola (UNAIDS 2010: 17). As the young villagers’ sex network opens up we should expect the HIV epidemic to go fully rural, and school to play the protective role.

Conclusion

Out-of-school youth are a particularly vulnerable category, kept under the radar of epidemiological research. Their RSB is more pronounced. Their health literacy is under par. Our review pointed to the importance of (1) scaling up SRH-related research on out-of-school adolescents, including basic biomarker information such as serostatus, (2) standardizing the definition and age-group of this category, (3) acknowledging the proper SRH profile and corresponding needs of out-of-school youth, (4) differentiating between urban and rural risk groups, (5) more longitudinal cohort analyses of the sex networks to end speculations about the causal direction of the established associations, (6) a sustained effort in verifying the cross-regional significance of the associations.

Acknowledgments

Thanks are due to UNFPA for sponsoring the review and to ICRH (UGent) for facilitating it. We are indebted to an anonymous referee for one invaluable reference.


Figure 1: Percentages of primary-school-aged children out-of-school: East Africa (UNESCO - UIS online database 2010)
Figure 2: Percentages of primary-school-aged children out-of-school: Southern Africa (UNESCO - UIS online database 2010)
Figure 3: Flow diagram of studies selected for systematic review

- Records identified through database searches: N=2216
- Duplicates excluded: n=614
- Potentially relevant unique titles screened: n=1602
- Full manuscript assessed: n=440
- Studies included in synthesis: n=295
- Studies meeting inclusion criteria: n=104

**Excluded:**
- Not in Eastern of Southern Africa: 300
- Not among out-of-school youth: 540
- Not reporting in HIV/SRH status or on HIV prevention/SRH promotion: 322

**Records identified through a targeted search of other sources:**
- Google Scholar=1, the screening of reference lists=1, and websites of international organizations (grey literature)=31

**Records identified through key authors:** n=2

- Descriptive studies=48
- Intervention studies=56
- Key articles=19
- Key articles=26
Table 1: Overview of key descriptive literature: Cross-sectional studies

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<thead>
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<th>Country</th>
<th>Year</th>
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<th>Study population</th>
<th>Age group</th>
<th>Sample size</th>
<th>Main themes</th>
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<th>Main factors</th>
<th>Other factors</th>
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<td>Unwanted pregnancy</td>
<td>School attainment</td>
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<td>Out-of-school youth in Bahir town</td>
<td>15-24</td>
<td>628 + q:46 FGD 10 IDI</td>
<td>Risky sexual behavior, condom use</td>
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<td>School attainment, being male</td>
<td>Alcohol, khat use, unemployment</td>
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<td></td>
<td>2002</td>
<td>Taffa, N</td>
<td>Out-of-school youth</td>
<td>-</td>
<td>1,115</td>
<td>HIV/AIDS knowledge, practice, attitude</td>
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<td>Age, sex, marital status</td>
<td>Education level</td>
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<td>Africa</td>
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<td>13-18</td>
<td>1,007</td>
<td>HIV/AIDS knowledge</td>
<td>Credible source of information</td>
<td>Urban/rural, sex</td>
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<td>2009</td>
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<td>10-19</td>
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<td>13-18</td>
<td>1,007</td>
<td>HIV/AIDS knowledge</td>
<td>Risky sexual behavior, condom use</td>
<td>Socio-economic status, employment, age</td>
<td>Religion, tribe, school experience/ culture</td>
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<td>Uganda</td>
<td>2004</td>
<td>Ndyana bangi, B</td>
<td>In-and out-of-school youth</td>
<td>12-21</td>
<td>556 (256 out-of-school)</td>
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<td>Being out-of-school</td>
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<td>Age, age at sexual debut, ever pregnant/fathered, alcohol use</td>
<td>Education level, circumcision status, urban/rural residence</td>
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<td>Study population</td>
<td>Age group</td>
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<td>31 (q: FGD)</td>
<td>Transactional sex</td>
<td>Culture, gender</td>
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<td>Bastien, S</td>
<td>In- and out-of-school youth in Kilimanjaro</td>
<td>13-18</td>
<td>78 (q: IDI)</td>
<td>HIV/AIDS knowledge (health literacy)</td>
<td>Being out-of-school</td>
<td>Culture (social network)</td>
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<td>2008</td>
<td>Francis, D</td>
<td>Out-of-school youth</td>
<td>10-18</td>
<td>32 (q: IDI)</td>
<td>Risky sexual behavior, condom use</td>
<td>Culture (tradition and peer), gender relations</td>
<td>Socio-economic (poverty), education level, sense of agency</td>
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</table>
Table 3: Significant associations for out-of-school youth

- More *STI infections* among out-of-school youth in urban Ethiopia (Taffa 2002); more *HIV infection* among non-students in rural South Africa (Hargreaves 2008).

- Less *HIV knowledge* among out-of-school youth both in Tanzania (Bastien 2008, Bastien 2009) and in Uganda (Ndyanabangi 2004).

- Less *condom use* among out-of-school young women in South Africa, both rural (Hargreaves 2008) and urban (Zambuko 2005) and among young men and women in Uganda (Ndyanabangi 2004) and in urban Ethiopia (Alemu 2007, Taffa 2003).


- More *concurrent or multiple partners* among out-of-school young women in urban Ethiopia (Taffa 2003) and for both sexes in rural South Africa (Hargreaves 2008), but less concurrency or multiple partners for out-of-school boys in Tanzania (Masatu 2009).


- More *sexual abuse* experienced by out-of-school young women both in urban Ethiopia (Erulkar 2009) and in Zambia (Slonim-Nevo 2005).